

## AMENDMENTS

### Amendments to the Claims:

The following listing of claims will replace all previous listings and versions thereof:

### Listing of Claims:

42. (Currently amended): A method for selecting a compound which reduces the activity of a SCN1A sodium ion channel comprising:

- (a) contacting a composition comprising a SCN1A sodium ion channel protein with a test compound;
- (b) assaying the activity of the sodium ion channel in the presence of said test compound;
- (c) comparing the activity of the sodium ion channel in the absence of said test compound; and
- (d) selecting a compound which reduces the activity of the sodium ion channel as compared to the activity of the sodium ion channel in the absence of the test compound,

wherein said SCN1A protein is selected from the group consisting of:

- (i) SEQ ID NO:3;
- (ii) SEQ ID NO:4; and
- (iii) a SCN1A protein encoded by a SCN1A nucleic acid sequence ~~having at least 95% identity overall to the nucleic acid sequences~~ as set forth in SEQ ID NO:1 or 2.

43. (Previously presented): The method of claim 42, wherein said method is used for selecting a compound capable of reducing voltage-gated ion channel activity of a human SCN1A protein associated with idiopathic generalized epilepsy (IGE).

44. (Previously presented): The method of claim 42, wherein said method is used for selecting a compound capable of reducing voltage-gated ion channel activity of a human SCN1A protein associated with generalized epilepsy with febrile seizures.
45. (Currently amended): The method of claim 42, wherein said test compound is comprised in a library of test compounds.
46. (Previously presented): The method of claim 42, wherein a SCN1A nucleic acid encoding said SCN1A protein is comprised in an expression vector.
47. (Previously presented): The method of claim 46, wherein said expression vector is comprised in a cell.
48. (Previously presented): The method of claim 42, wherein said assaying is performed in a cell free system.
49. (Previously presented): The method of claim 42, wherein said assaying is performed with a whole cell.
50. (Currently amended): The method of claim 42, wherein said ion channel activity is:
- (i) voltage dependence activation;
  - (ii) voltage dependence of steady state level of inactivation;
  - (iii) time course of inactivation;
  - (iv) the number or fraction of channels available for opening;

- (v) change in current;
- (vi) flux of ions through the channel;
- (vii) phosphorylation of channel;
- (viii) binding of molecules to the channel; or
- (ix) induction of a ~~second~~ cellular messenger.

51. (Currently amended): The method of claim ~~[[51]]~~50, wherein said flux of ions through the channel is assessed by:

- (i) fluorescence resonance energy transfer (FRET)-based voltage sensor assay;
- (ii) dibasic dyes;
- (iii) <sup>14</sup>C-guanidine;
- (iv) two electrode voltage clamp; or
- (v) patch-clamp.

52. (Currently amended): The method of claim ~~[[51]]~~50, wherein said binding of molecules ~~through to~~ the channel is assessed by surface plasmon resonance.

53. (Previously presented): The method of claim 42, wherein said method is used for selecting a compound which reduces the hyperexcitability state of a SCN1A ion channel.

54. (Previously presented): The method of claim 42, wherein SEQ ID NO. 3 is obtained from a SCN1A nucleic acid sequence encoding SEQ ID NO. 3.

55. (Previously presented): The method of claim 42, wherein SEQ ID NO. 4 is obtained from a SCN1A nucleic acid sequence encoding SEQ ID NO. 4.
56. (Previously presented) The method of claim 42, wherein a SCN1A nucleic acid sequence comprises a sequence selected from the group consisting of SEQ ID NOs: 189-192.
57. (Currently amended) The method of claim 42, wherein a SCN1A protein comprises a D188V-mutation at amino acid position 188 of SEQ ID NO:3 or SEQ ID NO:4.
58. (New) The method of claim 57, wherein said mutation at amino acid position 188 is encoded by a gtt codon at positions 827-829 of SEQ ID NOs: 1 or 2.
59. (New) The method of claim 42, wherein the SCN1A sodium ion channel protein is a recombinant SCN1A sodium ion channel protein.